Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services 2890 Woodbridge Ave, Building 209 Annex Edison, NJ 08837-3679 Telephone: 732-321-4200 Facsimile: 732-494-4021



DATE: November 13, 2018

TO: Joe Schaefer, U.S. EPA/ERT Work Assignment Manager

THROUGH: Paul Carter, SERAS Program Manager

FROM: Stephen Simonetti, SERAS Task Leader PS 6 5

SUBJECT: TONAWANDA COKE AIR, TONAWANDA, NY

WORK ASSIGNMENT #SER00359 - TRIP REPORT

BACKGROUND

Under this Work Assignment (WA), Scientific, Engineering, Response and Analytical Services (SERAS) contract personnel provided assistance to the Environmental Protection Agency/Environmental Response Team (EPA/ERT) and EPA Region 2 by performing air monitoring and sampling in neighborhoods surrounding the Tonawanda Coke Corporation located at 3875 River Road in Tonawanda, Erie County, New York (NY). The purpose of this project was to monitor for benzene as volatile organic compounds (VOCs), sulfur dioxide (SO₂) and particulates. Twenty-four hour air samples were also collected in SUMMA® canisters and analyzed for benzene only.

In 1917, the first coke ovens were put into service at the Tonawanda Coke Corporation. On October 9, 2018, The New York State Department of Environmental Conservation (NYSDEC) announced that it would take up a request from the U.S. Attorney's Office to oversee the shutdown of the Tonawanda Coke facility on River Road (Niagara Gazette, accessed 10/13/18). The shutdown of the plant began on Sunday, October 14, 2018.

The EPA/ERT was requested by EPA Region 2 to perform air sampling and monitoring. All of the initial work was carried out under the Emergency Response Work Assignment (WA) 0-001 and was later transferred to this site specific WA.

OBSERVATIONS AND ACTIVITIES

Equipment and technical support to conduct continuous air monitoring for particulate fraction of 2.5 microns (μm) (PM_{2.5}), VOCs as benzene and SO₂ were deployed on site. In addition, 24-hour ambient air sampling for benzene was conducted using SUMMA^{**} canisters.

Particulate monitoring was performed using the TSI Inc., DustTrak DRX Model 8533 aerosol monitor (DustTrak). Additional monitoring was performed for VOCs as benzene and SO₂ using RAE Systems MultiRAE monitors.

All air monitoring instrumentation was connected to ERT's wireless data acquisition system (VIPER). This allowed EPA Region 2, EPA/ERT, and SERAS personnel to remotely access air monitoring data in real-time from multiple locations. SERAS personnel utilized the VIPER data acquisition management system to generate real-time time-weighted averages for the monitored compounds to assist EPA Region 2/ERT.

Six fixed monitoring locations were selected where MultiRAEs and DustTraks were deployed; all locations were selected in consultation with EPA Region 2 and EPA/ERT. These fixed monitoring locations were based on wind direction and/or other factors deemed to be relevant to health and safety of the public.

The monitoring and sampling event began on October 14, 2018 (at TCP-01, TCP-02, TCP-03, TCP-04 and TCP-05) and was completed on October 21, 2018. Sampling locations coincided with the monitoring locations. Location TCP-06 began air monitoring and sampling activities on October 15, 2018. Additionally, location TCP-06 was moved to a different location on the property due to access issues on October 19, 2018. Figure 1 depicts the air monitoring and sampling locations. Appendix A contains VIPER Work Sheets and field notes taken by SERAS personnel during onsite activities throughout the air monitoring event.

AIR MONITORING

Air monitoring began on October 14, 2018 at approximately 2100 and continued through October 21, 2018 to approximately 1050. Air monitoring for particulates was performed utilizing a DustTrak, a particulate monitor which continuously monitors the real-time concentration of airborne dust, smoke, mists and fumes. The DustTrak covers a measurement range from 0.001 milligrams per cubic meter (mg/m³) to 150 (mg/m³).

Air monitoring for VOCs was performed utilizing MultiRAE monitors, manufactured by RAE Systems. The MultiRAE is an active portable gas multi-sensor monitor designed to provide continuous air monitoring in hazardous environments. A photo-ionization detector (PID) was used to detect organic vapors using a 10.6 eV (electron volts) lamp. The unit can detect trace quantities of volatile organics in the air with a range of 0.1 to 2,000 parts per million (ppm). MultiRAE units were also equipped with a sensor to monitor SO₂ with a range of 0.1 to 20 ppm.

MultiRAEs and DustTrak monitors were connected to ERT's VIPER data acquisition system. The VIPER system utilizes ERT's VIPER Survey Controller application to manage data collection using Safe Environment Engineering's LifeLine wireless monitoring system. LifeLine is comprised of a Lifeline Interoperable Network Communicator (LINC) which is physically connected to each air monitoring instrument. The LINC connects the instrument to a Gateway via Wi-Fi. The Gateways provided a data connection from Survey Controller to the LINC through internet access using cellular air cards and Wi-Fi, transmitting the monitoring data from the instrument to Survey Controller. The data was presented and archived on the ERT VIPER Deployment Manager website. The regional OSCs and ERT personnel were provided with access to site-specific monitoring data through the VIPER Deployment Manager website.

The Deployment Manager website for this site was monitored by EPA and SERAS personnel while on site to monitor for hardware or software issues. If a hardware or software issue was detected that needed on-site attention, SERAS personnel responded to the issue as quickly as possible. All monitoring units were regularly inspected and calibrated as needed by SERAS field personnel in order to provide a continuous data stream to VIPER. The Region 2 OSC was provided with access to site-specific monitoring data through the VIPER Deployment Manager website.

Routine maintenance included voltage readings and battery replacement on LINCs, Gateways, DustTraks and MultiRAEs; calibration and replacement of sensors and PID lamps when required; and inspection of water trap filters for obstructions and moisture.

AIR SAMPLING

Ambient air sampling began on October 14, 2018 and concluded on October 21, 2018, samples were taken from the breathing zone outside in the vicinity of the facility. Initially five sample locations were utilized for the first 24-hours sampling period; an additional sixth location (TCP-06) was added during all of the remaining sampling periods. A total of 53 SUMMA® samples, including trip blanks, were collected for 24-hour sampling periods from October 14, 2018 to October 21, 2018. Samples collected on October 15, 2018 were collected over an approximate 18-hour period. Samples collected on October 20, 2018 and October 21, 2018 had an approximate six hour overlap due to the timing of gas flaring ceasing at the facility on October 20, 2018 at approximately 0800.

All samples were collected using SUMMA® canisters equipped with restrictive orifices set at an approximate flow rate of 3.5 milliliters per minute (mL/min) to collect between four to five liters of air during each 24-hour sampling period. Collocated ambient air samples were collected every other day.

After the 24-hour sampling period had elapsed, the ambient air samples collected in SUMMA® canisters were retrieved from each location and properly documented in accordance with SERAS Standard Operating Procedure (SOP) #1704, SUMMA® Canister Sampling and SOP #2002, Sample Documentation.

Fifty-three SUMMA Canisters were collected and delivered under chain of custody (COC) to SERAS Laboratory for analysis in accordance to SERAS SOP #1814, *Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)*.

Appendix B contains the SUMMA® Sampling Work Sheets for the monitoring event.

RESULTS

Benzene was not detected in any of the SUMMA® samples.

Appendix C contains the Final Analytical Report for all of the samples collected.

MultiRAE data measurements did not exceed the action level of 5.0 ppm for VOCs nor a 10 minute time-weighted average of 0.2 ppm for SO_2 at any location. There were no exceedances of the $PM_{2.5}$ 24-hour time weighted average of $35\mu g/m^3$ for the DustTrak data measurements at any location.

FUTURE ACTIVITIES:

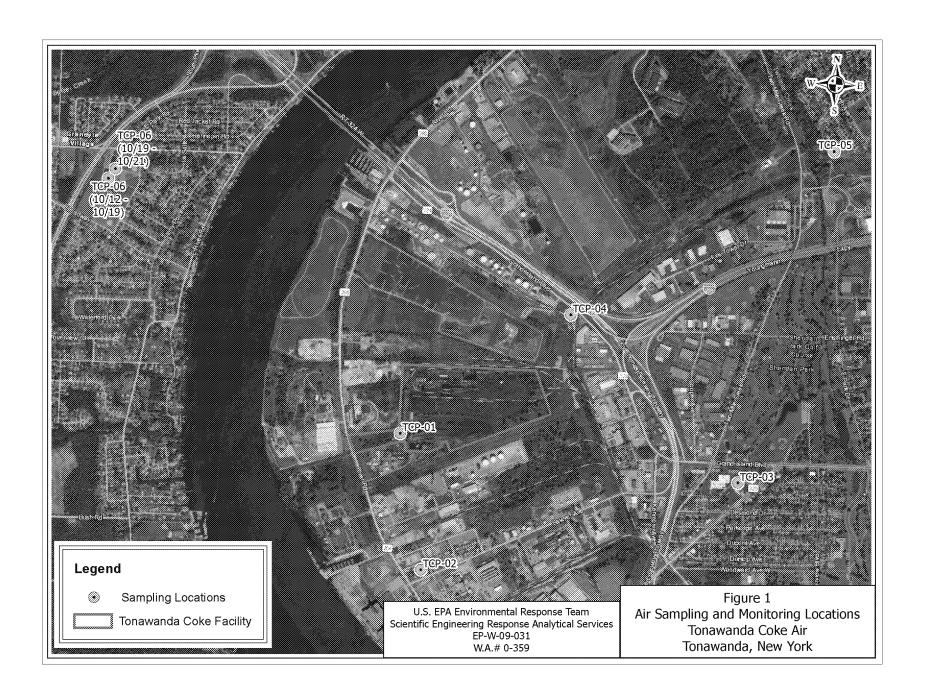
No further activities are anticipated at this time.

cc: Central File WA SER00359 (w/attachments)

Electronic File: I:/Archive/SERAS/0359/D/TR/0359-DTR-111318

Paul Carter, SERAS Program Manager (cover page only)

Figure
Sampling and Monitoring Locations
Tonawanda Coke Air
Tonawanda, New York
November 2018



APPENDIX A Viper Work Sheets Tonawanda Coke Air Tonawanda, New York November 2018



EPA/Environmental Response Team Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031

Page of SERAS

Viper Work Sheet

Site: <u>/orbw</u>	ende C	0 <i>KE</i>				wa# <u>359</u>	
Sampler: <u>Sz</u>	~~~~~	/Durse	es/vol	usa/m	#6pm	u.s. epajert wam: <u>Schaefer</u>	
Date: <u>/o/14 (</u>	, "					SERAS Task Leader: Samuert	
	T	7	7	7	-		
Gateway#/	Legacy	Mesh	LNC	Fixed/	Instrument	Location /Sensors/Power/Notes	
SSID	(Y/N)	# (Y/N)	#	Mobile			
19			41		Ma	TCP-07	
	***************************************		49		DT		
16-52			104		N.C.	TLP-03	
			92		ン だ		
6			98		/\\C_	1760-01	
			90		' \\7		
4 4			102		<u>~~~</u>	72P-04	
			94		DT		
2			/o _l		M.C.		
			96		D7	- TUP-05	
17			103		HL	700-06 Sundan 100/2002 3 57	les Le
			95		DT		7:3
				į			
Notes:			***************************************				
~~~~	***************************************		***************************************				

# APPENDIX B SUMMA® Sampling Work Sheets Tonawanda Coke Air Tonawanda, New York November 2018



Site:

# EPA/Environmental Response Team Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031

SUMMA Sampling Work Sheet

SERAS

wa# <u>0</u>

Schools

SERAS Task Leader:

U.S. EPA/ERT WAM:

Simonett

Sampler: 10/18 Was Date Stop: 10/15/18

Sample #	Location	_と Sub-Location	1	Summa #	Orifice ID	Analysi Metho		Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
259 2912001		Arz	ALC	N0767	1 ² 2 ⁰⁰ 2		3	-285	-38	2043	1505	-70
354 6002	TLP-62	AMB-60		010601	13836 1 <del>38</del> 5	(SQ \$ 7 8	1147	- 73.5	-3,7	2043	1505	-745
<u>359-003</u>	70P-03	MMB		L19550	<b>-</b>  011			-28 -45;	-3,6	2114	1500	-8.0
Y080-	JCP-01	AMB		010573	21204		Ô	基	-3,3	2229	1543	-10,5
- 0005	72P-04	Ans		C561506	410G			- 28	-3 4	2316	1555	-11.0
-0006	TZP-05	AMB		210591	13790			-27.5	-3.4	2349	1613	-105
-0007	100	<i>~</i> ~.		13744	Section Section 1	V		-22,5	**************************************	2000	1530	-28,5
					***************************************				***************************************			
		ii ii										
MET Station on Site?: Y/N Flow				<u>164034</u>		NIST Gaug	ge#:	100×1189	\$	N	IIST Gauge#:	0004220

# EPA/Environmental Response Team Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031

ering, Response and Analytical Services
ed Martin Corp., Edison, NJ
A Contract No. EP-W-09-031

site: Jonawanda Coke

**SUMMA Sampling Work Sheet** 

U.S. EPA/ERT WAM:

WA#

SERAS Task Leader: Simonal

Sampler: Stronger / MAGAM/ YOUKOR DO BERGE

Date Stop: /0/1/6/18

Sample #	Location	Sub-Location	Matrix	Summa#	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
359	TCP-02-	AMB	3	\$	₹ .		.28.5	3.4	1508	/500	-1,5
⁻ 0069	101.03			10593	13947		-28,5	3.4	15 25	1513	13.5
- OD/10	16801			10531	137159		28,5	3,4	1545	153 <b>3</b> 6	,-2,0
< 0 0 II	10P-04			10597	13019		-28.5	4,3	1557	1517	<u>* 2.5</u>
- 0012	108 · 05			W33	14040		28,5	5,5	16/6	/631 <b>/22</b>	- 1,0
- 0013	(CP-06			1980	2040		-74 243010	3.5	1557	1617 1617	- "5
- 0014	12.2	**************************************		18001	90000000	V	-24.5	*80000*****	15:00		
MET Station or	Site?: Y/N	Flo	ow meter:	F5H034		NIST Gauge#:	42189		1	VIST Gauge#:	42206



# EPA/Environmental Response Team Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031



## **SUMMA Sampling Work Sheet**

Site: JONANDONSA LOKE

Sampler: Strong + T / Vackse

Date Start: 10/16/18

Date Stop: /0/17/18

WA#

U.S. EPA/ERT WAM:

SCHAFFER

SERAS Task Leader:

Strongtt

Sample #	Location	Sub-Location	Matrix	Summa#	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
<u> </u>	727-02	AMB	<u>Azc</u>	10554 1	597.1	50º /81	u - 27.5	-3.3	1501	1501	-6.5
- 2016	TCP-03	Ams		10590	13998		~ 27:5	-3.3	1514	1514	-4.5
-001	TZP-03	AMB-60		2046	14/017		- 78	-3.7	1514	1514	-20
0016	TOP-01	An3		10516	22303		-27.5	-3,7	1533	1533	~Z,5
ωK	TCT-04	Ams		14401	14024		-28	-3.3	15:17	15-16	-0.0
Zo	-729 - OG			1991	13793		- 28	-3,*(	1612	1609	-3,0
2	TC9-05			Zoris	775031		- 22	-3,5	1631	1676	-2.5
<u> </u>	-12-12	<u> </u>		2008	14021	1	-25.5	<u> 4</u>	•••••	1630	-283
4ET Station or	n Site?: Y/N	Flo	)w meter: 1	54034		NIST Gauge#	47188		<u> </u>	VIST Gauge#:	44 1/2
								## <u></u>			9

Site: TONALANDA COKE

Date Start: 10/17/18 Date Stop: 10/18/18

## EPA/Environmental Response Team Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031

## SUMMA Sampling Work Sheet

WA# <u>359</u>

U.S. EPA/ERT WAM: SUIAGFER

SERAS Task Leader:

Sample #	Location	Sub-Location	Matrix	Summa #	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
341-0023	728-02	Anb	Acr	/05eH	13922	SERAS SOP /814	- 29	-3.4	1502	1500	- 2. 6
<u> </u>	720-03			2021	<u> 13467</u>		- 78.5	-3.4	1515	1513	- 2,0
25_	768-01			13740	13917		-785	-3,4	<i>1</i> 533	/530	-1.5
	7CP-OH			10539	22303	7	-28.5	-3,4	1546	1543	~ O, O
	7CP-06			2060	1390%		-79	-3,5	1609	1559	-0.0
73	TCP-05			/659E	13997		-29.5	- 3.3	1627	614	- 1,5
20	TRIP BLANK	<u> </u>	<b>*</b>	13735		1	- 28.5			1600	-28.5
MET Station or	Site?: Y/N	FI	ow meter:	F5+103+1		NIST Gauge#:	1/2/88		N	IIST Gauge#:	427.06



Site: TONAWANDA COKE

## EPA/Environmental Response Team Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031

## SUMMA Sampling Work Sheet

WA# 359

U.S. EPA/ERT WAM: SUIGEFOR

SERAS Task Leader: SIMMSTTI

Sample #	Location	Sub-Location	Matrix	Summa #	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
<u> 200-76</u>	702-02	AMBZEAT	<u> </u>	10604	13911	Seras Sop 1814	- 295	- 3,4	/500	14165	-3.0
31	-76P-03			10594	/3986		-30	-3,4	1514	1507	- 2.0
37	16P-03 62			/0583	/3190		-30	-3,4	1514	1507	<u> </u>
33	To-Soi			10616	723024		-30	-3,5	/53a	<u> 623</u>	- 2,0
34	76P-04			10543	/3153		-29,5	-3.4	1543	1534	<u>- 35</u>
35	<u> TCP - GC</u>			<u>/0595</u>	13951		- 30	- 3.4	1559	1550	-015
36	768-05			16620	13913		- 29.5	-3,5	1615	1617	-15
<b>3</b> 7	TRIP BLANK	<u></u>	7	2057	2"	<u> </u>	***************************************	<b>*200.4.</b> *	washin.	1625	-295
					***************************************			***************************************			***************************************
IET Station on	Site?: Y/N	Flo	w meter: 1	 -5+/6341		NIST Gauge#:	42/88		<u> </u>	IIST Gauge#:	4270C

## EPA/Environmental Response Team Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031

**SUMMA Sampling Work Sheet** 

Date Start: 10/19/18

U.S. EPA/ERT WAM: SCHAGGGR

SERAS Task Leader:

Sample #	Location	Sub-Location	Matrix	Summa #	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
<u>359 038</u>	762-02	AMBEENT	AFR_	10542	13927	SERAS SOP /314	- 79	-3,1	1455	1450	- 2,5
٥٧٤٩	100-03			10599	13991		-29.5	-3.4	1508	1503	-5.0
0040	TER-01			2049	1405		-29.5	-3,3	1573	1517	- 4.5
<u> </u>	-70P-04			/877	/3/13/3		- 29.5	-3,3	1534	1530	-9,0
2042	TTP-06			1986.	13960		- 29	- 36	1601	1557	- 2,0
20413	762-05			10552	13961		105 29 S	-3,5	1621	1617	- <b>H</b> ,0
<u>∞</u> 44	FICO BLOOK	7	•	<u> 1028</u>		Ţ			[615	~~~~	- 19
				•••••	~~~~					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	MAN
				•••••					***************************************	***************************************	***************************************
**************************************				••••••••••••••••••••••••••••••••••••••							
MET Station on	Site?: Y/N	Flo	w meter: 🏻 💮	<u> </u>	ÁAAAAAAAAAAAAAAAAAAAAAAA	NIST Gauge#:	42188		<u> </u>	IIST Gauge#:	42206

## EPA/Environmental Response Team Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031

**SUMMA Sampling Work Sheet** 

TONAMANDA COKE

U.S. EPA/ERT WAM: SCHAGFOR

SERAS Task Leader: Semonsore

Sample #	Location	Sub-Location	Matrix	Summa #	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
359-3945 359-3993	767-02	AMBIENT ALL	AZIL	10529	ZZ3016	569-AS 560 /8/4	- 29	~3, <b>4</b> {	0903	857	-6,5
004/6	722-03			1+1347	139/5		- 29	-3,4	O917	910	- 2.0
004/7	772-01			19615	773015		-29	-3,4	O936	924	-1.0
0048	767-04			<u> 16563</u>	13987		- 29	- 3. 4	<i>094</i> 5	939	-0.5
0049	TCP-04 CO			16617	<u> 223016</u>		-29	-3.4	0948	939	-7,5
0050	777-06			1347	2230H		-29	-3.4	/00%	957	-1.5
0051	722-05			10596	Z13010		-25	~3,4	10 Z4	1016	- 1,0
0057	FIEUS BLANK	4	¥	/980		<u> </u>	#	***************************************		1619	-79.0
								***************************************	~~~~~		
		,,									
MET Station on	Site?: Y/N	Flor	w meter: 1	<u>FS4034</u>	Y	NIST Gauge#:	4/2/88	***************************************	<u> </u>	IIST Gauge#:	472266

APPENDIX C Final Analytical Reports Tonawanda Coke Air Tonawanda, New York November 2018

### ANALYTICAL REPORT

Prepared by Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services

> Tonawanda Coke Site Buffalo, NY

> > October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

> Submitted to J. Schaefer EPA/ERT 2890 Woodbridge Avenue Edison, NJ 08837

D. Killeen

QA/QC Officer

10/18/18

Date

P. Carter

Program Manager

Analysis by:

ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



## **Table of Contents**

## **Topic**

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

## Section I

Results of the Analysis for Benzene (ppbv) in Air	Table 1.1a
Results of the Analysis for Benzene (µg/m³) in Air	Table 1.1b

### Section II

Results of the LCS Analysis for Benzene in Air	Table 2.1
Results of the Duplicate Analysis for Benzene in Air	Table 2.2

### Section III

Correspondence Chains of Custody

## **Appendices**

Appendix A Data for VOC in Air AD 042

Appendix A will be furnished on request.

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full, without the written consent of the ERT/SERAS Laboratory

nel c



### **TESTING LABORATORIES INFORMATION**

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.



## **Detailed Sample Information**

SERAS Sample #	Field Sample #
R810001-01	359-0002
R810001-02	359-0003
R810001-03	359-0004
R810001-04	359-0005
R810001-05	359-0006
R810001-06	359-0001
R810001-07	359-0007

#### Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, Sample Receiving, Handling and Storage.

Chain of Custody #	Number of Samples		Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101518-142808- 0001	2	10/15/18	10/16/18	10/16/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 042
2-101518-143956- 0002	2				Ambient Air			
2-101518-144039- 0003	2				Ambient Air			
2-101518-144158- 0004	1	-			Air			

#### **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

#### VOCs in Air Package AD 042

The data package was examined and found to be acceptable.

SERAS-359-DAR-101818 1

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.

#### **Summary of Abbreviations**

BFB Bromofluorobenzene

BS Blank Spike

BSD Blank Spike Duplicate

CC Degree Centigrade

COC Chain of Custody

conc concentration

cont continued

PCDD/PCDF Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)

DFTPP Decafluorotriphenylphosphine

EMPC Estimated maximum possible concentration
GC/ECD Gas Chromatography/Electron Capture Detector
GC/MS Gas Chromatography/ Mass Spectrometry
Hg-CVAA Mercury-Cold Vapor Atomic Absorption

ICP-AES Inductively Coupled Plasma- Atomic Emission Spectroscopy

ID Identification
IS Internal Standard

LCS Laboratory Control Sample

LCSD Laboratory Control Sample Duplicate
MDA Minimum Detectable Activity

MDL Method Detection Limit

MS Matrix Spike

MSD Matrix Spike Duplicate MW Molecular Weight

NA Not Applicable or Not Available NAD Normalized Absolute Difference

NC Not Calculated

NR Not Requested/Not Reported

% D Percent Difference % R Percent Recovery

SOP Standard Operating Procedure PCB Polychlorinated Biphenyl PDS Post Digestion Spike

Percent RSD Percent Relative Standard Deviation

ppbv parts per billion by volume

ppm parts per million

pptv parts per trillion by volume
QA/QC Quality Assurance/Quality Control
QAPP Quality Assurance Project Plan
RL Reporting Limit
PPD Relative Persont Difference

RPD Relative Percent Difference S4VM Stage 4 validation done manually

SIM Selected Ion Monitoring

SERAS Scientific Engineering Response and Analytical Services

TIC Tentatively Identified Compound

TCLP Toxicity Characteristic Leaching Procedure

SVOC Semi Volatile Organic Compound VOC Volatile Organic Compound

Value exceeds the acceptable QC limits

$m^3$	cubic meter	g	gram	kg	kilogram	L	liter
μg	microgram	$\mu L$	microliter	mg	milligram	mL	milliliter
ng	nanograms	pg	picogram	pCi	picocurie	σ	sigma

#### Data Validation Flags

Value is estimated R Rejected or Value is unusable

J+ Value is estimated high U Not detected

J- Value is estimated low UJ Not detected and RL is estimated

Rev. 01/01/15, YRM

SERAS-359-DAR-101818 2



Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number NA				F	R810001-0	7	R810001-03			
Sample Number	PS-MethodBlank-101618			359-0007			359-0004			
Sample Location			Trip Blank			TCP-01				
Date Analyzed 10/16/2018		10/16/2018			10/16/2018					
Matrix				Air			Ambient Air			
Test Type	Initial				Initial			Initial		
Total or Dissolved		N			N			Ν		
	Result	RL	MDL	Result	RL	MDL	Result	RL	MDL	
CAS No Analyte	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppb∨	
71-43-2 Benzene	U	0.0200	0.00342	U	0.0200	0.00342	U	0.400	0.0685	
71-43-2 Berizerie	U	0.0200	0.00342	U	0.0200	0.00342	U	0.400	0.0005	

Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	R810001-06			F	R810001-0	)1	R810001-02				
Sample Number		359-0001			359-0002	:	359-0003				
Sample Location	TCP-02			•	TCP-02C	)		TCP-03			
Date Analyzed	10/16/2018				10/16/2018			10/16/2018			
Matrix	Ambient Air			Ambient Air			Ambient Air				
Test Type	Initial			Initial				Initial			
Total or Dissolved		Ν			Ν			Ν			
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv		
71-43-2 Benzene	U	0.400	0.0685	U	0.400	0.0685	U	0.400	0.0685		

Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number	•			R810001-05 359-0006					
Sample Location TCP-04				TCP-05					
Date Analyzed	10/16/201		10/16/201	8					
Matrix	Ambient A	1	Ambient A	ir					
Test Type	Initial		Initial						
Total or Dissolved	N			Ν					
CAS No Analyte	Result <i>RL</i> ppbv ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv				
71-43-2 Benzene	U 0.400	0.0685	U	0.400	0.0685				

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





## Table 1.1b Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Name.	EK I/SEKAS											
Lab Sample	Number		NA		F	R810001-0	7	F	R810001-03			
Sample Nun	nber	PS-MethodBlank-101618			359-0007			359-0004				
Sample Loca	ation				Trip Blank			TCP-01				
Date Analyz	ed	10/16/2018			10/16/2018			10/16/2018				
Matrix		Air			Air			Ambient Air				
Test Type		Initial				Initial			Initial			
Total or Diss	solved		N			Ν			Ν			
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3		
71-43-2	Benzene	U	0.0639	0.0109	U	0.0639	0.0109	U	1.28	0.219		

## Table 1.1b (cont) Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample	Number	R810001-06			R810001-01			R810001-02			
Sample Number 359-0001			359-0002			359-0003					
Sample Location		TCP-02			TCP-02CC	)	TCP-03				
Date Analyz	ed		10/16/2018	3		10/16/201	8		10/16/201	8	
Matrix Ambient Air		ir	Ambient Air			Ambient Air					
Test Type			Initial			Initial			Initial		
Total or Diss	solved		Ν			Ν			Ν		
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	RL µg/m3	<i>MDL</i> μg/m3	
71-43-2	Benzene	U	1.28	0.219	U	1.28	0.219	U	1.28	0.219	

## Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	R810001-04	R810001-05
Sample Number	359-0005	359-0006
Sample Location	TCP-04	TCP-05
Date Analyzed	10/16/2018	10/16/2018
Matrix	Ambient Air	Ambient Air
Test Type	Initial	Initial
Total or Dissolved	N	N

CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	MDL μg/m3
71-43-2	Benzene	U	1.28	0.219	U	1.28	0.219

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





## Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: LCS 101618

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery		C Lim Recov	
Benzene	1.00	0.949	95	78	-	122

nel c



## Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Sample ID: 359-0006

Page 1 of 1

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25

nel c

CarrierName:

USEPA

DateShipped: 10/15/2018

CHAIN OF CUSTODY RECORD

No: 2-101518-142808-0001

Site #: 359

Contact Name: Larry Martin/Samples Receiving

Lab: ERT/SERAS

Cooler#:

	# R 9	0001	.,		С	ontact Ph	one: 609-868	5-9306					Lab Phone	b: ERT/S : 732-32	
Lab#	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Pump#	OrificeID	Stop_Da te	Stop_T Ime	Start Press ure	
01	359-0002	TCP-02 CO	Ambient Collocated	SERAS SOP#1814	24	Hours	Amblent Air	10/15/20 18	1505	10607	13956	10/15/20 18	1505	-28.5	****
<i>0</i> 2	359-0003	TCP-03	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/15/20 18	1522	10580	14011	10/15/20 18	1522	-28	-80
		No. of the Contract of the Con													***************************************
~~~~					*******************		7								
***************************************						/#6			and the second second second second		***************************************				
		***************************************						No. of the last of							
															~~~~
											Name of the State				·
						~~~~									

Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason Rellfiquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Manulysis / songs	10/15/18 1530	Try Philip / SERAS	10/16/18 8:00	Intact
AU/Analysis Try State /SERAS	10/16/18 10:00	Blufind larma /SERAS	16/16/18 10:00	. **
			or the state of th	
	I	(60		

USEPA

CHAIN OF CUSTODY RECORD

No: 2-101518-143956-0002

DateShipped: 10/15/2018

Site #: 359

Cooler #:

CarrierName: AirbillNo:

Contact Name: Larry Martin/Samples Receiving Contact Phone: 609-865-9306

Lab: ERT/SERAS Lab Phone: 732-321-4200

WO#R810001

Sample # Location Sub Location TAT TAT Analyses Matrix Sample Sample OrificeID Pump # Stop_Da Stop_T Start Stop Unite Time Date te ime Press Press ure ure 359-0004 TCP-01 Ambient SERAS SOP#1814 10/15/20 18 24 Hours Ambient 10/15/20 10573 223026 -28 03 10.5 Air 359-0005 TCP-04 Ambient SERAS SOP#1814 10/15/20 18 14009 1955 30 1916/18 24 Hours Amblent 10/15/20 18 04 561506

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason Rejkhqu)ished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
214malysis (SERAS	10/15/18	Jung Marin /SERAS	10/16/18 8:00	- Sanganana
AU/Analysis July/Jame /SERAS	10/16/18 10:cx	Bhapinan larman 15ERAS	18/16/18 10:00	
			, ,	

USEPA

CHAIN OF CUSTODY RECORD

DateShipped: 10/15/2018

CarrierName:

Site #: 359

Contact Name: Larry Martin/Samples Receiving

No: 2-101518-144039-0003

Cooler #:

Lab: ERT/SERAS

Lab#	<u> </u>		Bush & markle-	& so o & so o o	NO A 1000	9000 0 000		7	· · · · · · · · · · · · · · · · · · ·	1		· y	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Lau n	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Pump#	OrlficeID	Stop_Da te	Stop_T Ime	Start Press ure	Stop Press ure
05	359-0006	TCP-05	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/15/20 18	1505	10591	13790	10/15/20 18	15%	Konserva erre erre er	-7=0
06	359-0001	TCP-02	Ambient	SERAS SOP#1814	24	Hours	Amblent Air	10/15/20 18	1613	10567	2230013	10/15/20 18	16/3	-28.5	105

		The state of the s	**************************************		000000 0000 00000							\$*************************************			3
									\$ 111111111111111111111111111111111111			A CONTRACTOR OF THE PROPERTY O	and construction and the construction of the c		***************************************
					~~~		1			A CONTRACTOR CONTRACTO	A PARTICIPATION OF THE PARTICI				
			***************************************		anananananan	***************************************	<u> </u>		***************************************						
				***************************************			***************************************		***************************************					~~~~~	~~
					************										********
					and the construction of the state of								~		***************************************
***************************************			and the same of th	-			ļ						700000000000000000000000000000000000000		
	ppresentation of				*************	1881-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-			***************************************		ļ				8
L	.}	*************************************									į				1000

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #
Home/Dansan Balling that h. /Clastic and O.	

Items/Reason	Relinguished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Mulyes (	CK-ISGRAS	10/15/18/125	Trong There-ISERAS	10/16/18 8:00	-aaapaannoon / A
AU/Analysis	Try Short /SERAS	10/16/18	Blufin In lampa /SERAS	18/16/18 10:00	***************************************
•				· · · · · · · · · · · · · · · · · · ·	
ž	A	i			

USEPA

CarrierName:

DateShipped: 10/15/2018

Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final

CHAIN OF CUSTODY RECORD

Site #: 359

Contact Name: Larry Martin/Samples Receiving

No: 2-101518-144158-0004

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Cooler #:

Lab: ERT/SERAS

Lab#	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Pump#	OrificeID	Stop_Da te	Stop_T ime	Start Press ure	
07	359-0007	Trip Blank		SERAS SOP#1814	24	Hours	Air	10/15/20 18	15:30	13744	MA	10/15/20 18	3:30:00 PM	-28.5	-28.
										and the second second	And the second s				
								<u> </u>							
				}				1							
					and the state of t										
et territoria a altra eterritorioria												The same of the sa			
													Commence of the Commence of th	~~~~	

Items/Reason	Rejimquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Marsin	1/2/56RAC	1535/0/18	Jung Hamie- ISERAS	10/16/18 8700	Intact
AU/Anglysis	Im I Mar 15ERAS	10/16/18 10:00	Blaubjord lanuar ISERIS	16/16/18 10:00	
				///	

### ANALYTICAL REPORT

Prepared by
Leidos Innovations Corporation
Scientific, Engineering, Response and Analytical Services

Tonawanda Coke Site Buffalo, NY

October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

Submitted to
J. Schaefer
EPA/ERT
2890 Woodbridge Avenue
Edison, NJ 08837

D. Killeen QA/QC Onicer

Date

P. Carter

19/18

Program Manager

Date

ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona

Analysis by:



## **Table of Contents**

## **Topic**

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

## Section I

Results of the Analysis for Benzene (ppbv) in Air	Table 1.1a
Results of the Analysis for Benzene (μg/m³) in Air	Table 1.1b

### Section II

Results of the LCS Analysis for Benzene in Air	Table 2.1
Results of the Duplicate Analysis for Benzene in Air	Table 2.2

### Section III

Correspondence Chains of Custody

## **Appendices**

Appendix A Data for VOC in Air AD 043

Appendix A will be furnished on request.

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory

nel c



#### **TESTING LABORATORIES INFORMATION**

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.



## **Detailed Sample Information**

SERAS Sample #	Field Sample #
L810002-01	359-0008
L810002-02	359-0009
L810002-03	359-0010
L810002-04	359-0011
L810002-05	359-0012
L810002-06	359-0013
L810002-07	359-0014



#### Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, Sample Receiving, Handling and Storage.

Chain of Custody #	Number of Samples	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101618-115057- 0005	4	10/16/18	10/17/18	10/17/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 043
2-101618-121630- 0006	2				Ambient Air			
2-101618-152205- 0007	1				Air			

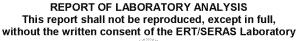
#### **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

#### VOCs in Air Package AD 043

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.





1



#### **Summary of Abbreviations**

BFB Bromofluorobenzene

BS Blank Spike

BSD Blank Spike Duplicate

CC Degree Centigrade

COC Chain of Custody

conc concentration

cont continued

PCDD/PCDF Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzo-furans (PCDF)

DFTPP Decafluorotriphenylphosphine

EMPC Estimated maximum possible concentration
GC/ECD Gas Chromatography/Electron Capture Detector
GC/MS Gas Chromatography/ Mass Spectrometry
Hg-CVAA Mercury-Cold Vapor Atomic Absorption

ICP-AES Inductively Coupled Plasma- Atomic Emission Spectroscopy

ID Identification
IS Internal Standard

LCS Laboratory Control Sample

LCSD Laboratory Control Sample Duplicate
MDA Minimum Detectable Activity

MIDA Minimum Detectable Acti MDL Method Detection Limit

MS Matrix Spike

MSD Matrix Spike Duplicate MW Molecular Weight

NA Not Applicable or Not Available NAD Normalized Absolute Difference

NC Not Calculated

NR Not Requested/Not Reported

% D Percent Difference % R Percent Recovery

SOP Standard Operating Procedure PCB Polychlorinated Biphenyl PDS Post Digestion Spike

Percent RSD Percent Relative Standard Deviation

ppbv parts per billion by volume

ppm parts per million

pptv parts per trillion by volume
QA/QC Quality Assurance/Quality Control
QAPP Quality Assurance Project Plan
RL Reporting Limit
RPD Relative Percent Difference

RPD Relative Percent Difference S4VM Stage 4 validation done manually

SIM Selected Ion Monitoring

SERAS Scientific Engineering Response and Analytical Services

TIC Tentatively Identified Compound

TCLP Toxicity Characteristic Leaching Procedure

SVOC Semi Volatile Organic Compound VOC Volatile Organic Compound

Value exceeds the acceptable QC limits

$m^3$	cubic meter	g	gram	kg	kilogram	L	liter
μg	microgram	$\mu L$	microliter	mg	milligram	mL	milliliter
ng	nanograms	pg	picogram	рСі	picocurie	σ	sigma

## Data Validation Flags

J Value is estimated R Rejected or Value is unusable

J+ Value is estimated high U Not detected

J- Value is estimated low UJ Not detected and RL is estimated

Rev. 01/01/15, YRM



### Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number	PS-Met	NA hodBlank-	101718	l	_810002-0 359-0014			_810002-0 359-0010	)			
Sample Location Date Analyzed		10/17/2018	3		Trip Blank 10/17/2018		TCP-01 Ambient 10/17/2018					
Matrix Test Type		Air Initial			Air Initial		Ambient Air					
Test Type Total or Dissolved		N			N			N	nitial N			
CAS No Analyte	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv			
71-43-2 Benzene	U	0.0200	0.00342	U	0.0200	0.00342	U	0.400	0.0685			

Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	-	.810002-0	•	l	L810002-0	-	L	_810002-0		
Sample Number		359-0008	3		359-0009	)		359-0011		
Sample Location	TC	P-02 Amb	ient	TC	P-03 Amb	ient	TCP-04 Ambient			
Date Analyzed		10/17/201	8		10/17/201	8	10/17/2018			
Matrix	A	Ambient A	ir	,	Ambient A	ir	Ambient Air			
Test Type	**				Initial		Initial			
Total or Dissolved		Ν			Ν			Ν		
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	
71-43-2 Benzene	U	0.400	0.0685	U	0.400	0.0685	U	0.400	0.0685	

Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number	L810002-0 359-001		L	_810002-0 359-0013	-	
Sample Location	TCP-05 Aml	oient	TC	P-06 Amb	ient	
Date Analyzed	10/17/201	8		10/17/201	8	
Matrix	Ambient A	Air	i	Ambient A	ir	
Test Type	Initial			Initial		
Total or Dissolved	N			Ν		
CAS No Analyte	Result <i>RL</i> ppbv ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	
71-43-2 Benzene	U 0.400	0.0685	U	0.400	0.0685	





#### Table 1.1b Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lub Humo. L	I ( //OLI ( //O									
Lab Sample	Number		NA		ı	L810002-0	7	l	_810002-0	)3
Sample Num	nber	PS-Met	hodBlank-	101718		359-0014			359-0010	)
Sample Loca	ation					Trip Blank		TC	P-01 Amb	ient
Date Analyze	ed		10/17/2018	3		10/17/2018	3		10/17/201	8
Matrix			Air			Air		,	Ambient A	ir
Test Type			Initial			Initial			Initial	
Total or Diss	olved		Ν			Ν			Ν	
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	RL μg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3
71-43-2	Benzene	U	0.0639	0.0109	U	0.0639	0.0109	U	1.28	0.219

#### Table 1.1b (cont) Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number Sample Location Date Analyzed Matrix Test Type Total or Dissolved		тс	.810002-0 359-0008 P-02 Amb 10/17/201: Ambient A Initial	ient 8	тс	L810002-02 359-0009 TCP-03 Ambient 10/17/2018 Ambient Air Initial			L810002-04 359-0011 TCP-04 Ambient 10/17/2018 Ambient Air Initial			
Total or Dis	solved Analyte	Result µg/m3	N <i>RL</i> μg/m3	<i>MDL</i> μg/m3	Result µg/m3	N <i>RL</i> μg/m3	<i>MDL</i> μg/m3	Result µg/m3	N <i>RL</i> μg/m3	<i>MDL</i> μg/m3		
71-43-2	Benzene	U	1.28	0.219	U	1.28	0.219	U	1.28	0.219		

#### Table 1.1b (cont) Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number L810002-05 L810002-06 Sample Number 359-0012 359-0013 Sample Location TCP-06 Ambient TCP-05 Ambient Date Analyzed 10/17/2018 10/17/2018 Ambient Air Matrix Ambient Air Test Type Initial Initial Total or Dissolved Ν

CAS No	Analyte	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	MDL μg/m3
71-43-2	Benzene	U	1.28	0.219	U	1.28	0.219

Ν





# Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: LCS 101718

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery		C Lim Recov	
Benzene	1.00	0.917	92	78	-	122



# Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: 359-0010

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25

CarrierN	1010	<i>"</i> O">	(A)   Q	Con		me: Larry	te #: 359 · Martin/Sam one: 609-865		ing			Cooler #: Lab: ERT/SERAS Lab Phone: 732-321-4200				
Lab#	8-16-66 Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	#	Container	Summa #	OrificeID	Start Pres sure		
01			.,	SERAS SOP#1814		Hours	Amblent Air	10/16/20 18	1502	1	Summa Canister	1934	223042	-28.5	-/,4	
- O Z	359-0009	TCP-03	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/16/20 18	1513	1	Summa Canister	10593	13942	-28.5	-3.	
-03	359-0010		Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/16/20 18	1533	1	Summa Canister	10531	13959	-28.5	~2.	
-04	359-0011	TCP-04	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/16/20 18	15,17	1	Summa Canister	10597	223029	-28.5	-2	
	***************************************												2000			
					· · · · · · · · · · · · · · · · · · ·					************						
~										20.000						
												N. Carlotte	\	: 		
														; ;		

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receip
Summas For ANAUSES	De Lors / Souns	10/16/12 1554	Jan low / SERAS	10/17/18 083	o Intact
11/1000/1513	J-, Phy / SERAS	10/17/18 11:30	Blufinder larum /SERAS	10/17/18/11:20	
		,	***************************************	······································	
		<u> </u>			

CarrierN AirbillNo クポ・足る	oped: 10/16/ ame: :		\${/\8	Con		me: Larry	te #: 359 · Martin/Sam one: 609-865	ples Receivi -9306	ng			Cooler #: Lab: ERT/SERAS Lab Phone: 732-321-4200				
			Sub Location	Analyses	TAT	TAT Units	Watrix	Sample Date	Sample Time	#	Container	Summa #	OrificeID	Start	Pre	
-05	359-0012	TCP-05	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/16/20 18	1631	1	Summa Canister	2033	14040	-28.5	sur -(.:	
-06	359-0013	TCP-06	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/16/20 18	1612	1	Summa Canister	1900	223010	-28.5	~ ů.:	
														Opposition .		
					************								Jacobs			
					Maria Arabina Maria											
***************************************							<i>A</i> *,									
							535			Ongania de Caracia de						
		100 application of the control of th														

SAMPLES TRANSFERRED FROM Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final CHAIN OF CUSTODY #

items/Reason	Religquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receip
SUMMAS RE AMAUSES	4/12- LCTORS/SERES	10/16/18	Jall/ SERAS	10/17/1888:30	Intact
" /and755	Jy Pall/ SELAS	10/17/18 C 11.30	Bhubindalarma /SERAS	10/17/18 1830	
	,		***************************************	······································	
***************************************		To indifferentiating companies and a			
······································					

Page 1 of

Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final

n	USEPA
n	

#### CHAIN OF CUSTODY RECORD

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

CarrierN AirbillNo	pped: 10/16/ lame: <u>L</u> 8 / <del>2   0 0 0 2</del>	0002	3/18	Site #: 359 Contact Name: Larry Martin/Samples Receiving Contact Phone: 609-865-9306								Cooler #: Lab: ERT/SERAS Lab Phone: 732-321-4200				
Lab#	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	#	Container	Summa #	OrificeID	Start Pres sure	Sto Pre	
07	359-0014	Trip Blank		SERAS SOP#1814	24	Hours	Air	10/16/20 18	1500	1	Summa Canister	10571		-27.5	49.44	
	**************************************														ļ	
														and the second	<u></u>	
				***************************************						:						
					Contraction of the Contraction o	\$ c									ļ	
						Andreas and the second second	<u> </u>				gan the same and th					
						<u></u>	2000	San Carrier			~~~~					
									And the state of t							
******************							a language of the second	515			No.	***************************************				
. ~				The state of the s								<u> </u>		·		
			uer C													
													Andrew Commencer			
	and the second second second															
and the second second														***************************************	<u>}</u>	

164 400 (73 000 000	Outline in the day of the control of	Oth Manual	· · · · · · · · · · · · · · · · · · ·		
Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Summa Fai Amausses	2/1// LE=0.5/562MS	16/16/12 1637	Joseph / SERAS	10/17/18/830	Intact.
An/Andysis	Jos Potal / SERAY	10/17/18 C	Bhubindu Parmar ISBRAS	10/17/18/11:30	
•					

### ANALYTICAL REPORT

Prepared by
Leidos Innovations Corporation
Scientific, Engineering, Response and Analytical Services

Tonawanda Coke Site Buffalo, NY

October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

Submitted to
J. Schaefer
EPA/ERT
2890 Woodbridge Avenue
Edison, NJ 08837

10/21/18

Date

D. Killeeh

QA/QC Officer

. Carter

Program Manager

Analysis by:

ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



#### **Table of Contents**

#### **Topic**

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

#### Section I

Results of the Analysis for Benzene (ppbv) in Air

Results of the Analysis for Benzene ( $\mu g/m^3$ ) in Air

Table 1.1a

Table 1.1b

#### Section II

Results of the LCS Analysis for Benzene in Air

Results of the Duplicate Analysis for Benzene in Air

Table 2.1

Table 2.2

#### Section III

Correspondence Chains of Custody

#### **Appendices**

Appendix A Data for VOC in Air AD 044

Appendix A will be furnished on request.



#### **TESTING LABORATORIES INFORMATION**

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.





### **Detailed Sample Information**

SERAS Sample #	Field Sample #
L810003-01	359-0015
L810003-02	359-0016
L810003-03	359-0017
L810003-04	359-0018
L810003-05	359-0019
L810003-06	359-0020
L810003-07	359-0021
L810003-08	359-0022





#### Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, Sample Receiving, Handling and Storage.

Chain of Custody #	Number of Samples	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101718-141909- 0008	4	10/17/18	10/18/18	10/18/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 044
2-101718-142725- 0009	3				Ambient Air			
	1				Blank			

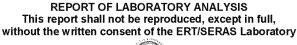
#### **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

#### VOCs in Air Package AD 044

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.





1



#### **Summary of Abbreviations**

BFB Bromofluorobenzene

BS Blank Spike

BSD Blank Spike Duplicate

CC Degree Centigrade
COC Chain of Custody
conc concentration
cont continued

PCDD/PCDF Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzo-furans (PCDF)

DFTPP Decafluorotriphenylphosphine

EMPC Estimated maximum possible concentration
GC/ECD Gas Chromatography/Electron Capture Detector
GC/MS Gas Chromatography/ Mass Spectrometry
Hg-CVAA Mercury-Cold Vapor Atomic Absorption

ICP-AES Inductively Coupled Plasma- Atomic Emission Spectroscopy

ID Identification
IS Internal Standard

LCS Laboratory Control Sample

LCSD Laboratory Control Sample Duplicate
MDA Minimum Detectable Activity

MDL Method Detection Limit

MS Matrix Spike

MSD Matrix Spike Duplicate MW Molecular Weight

NA Not Applicable or Not Available NAD Normalized Absolute Difference

NC Not Calculated

NR Not Requested/Not Reported

% D Percent Difference % R Percent Recovery

SOP Standard Operating Procedure PCB Polychlorinated Biphenyl PDS Post Digestion Spike

Percent RSD Percent Relative Standard Deviation

ppbv parts per billion by volume

ppm parts per million

pptv parts per trillion by volume
QA/QC Quality Assurance/Quality Control
QAPP Quality Assurance Project Plan
RL Reporting Limit
RPD Relative Percent Difference

RPD Relative Percent Difference S4VM Stage 4 validation done manually

SIM Selected Ion Monitoring

SERAS Scientific Engineering Response and Analytical Services

TIC Tentatively Identified Compound

TCLP Toxicity Characteristic Leaching Procedure

SVOC Semi Volatile Organic Compound VOC Volatile Organic Compound

* Value exceeds the acceptable QC limits

$m^3$	cubic meter	g	gram	kg	kilogram	L	liter
μg	microgram	μL	microliter	mg	milligram	mL	milliliter
ng	nanograms	pg	picogram	рСі	picocurie	σ	sigma

### Data Validation Flags

J Value is estimated R Rejected or Value is unusable

J+ Value is estimated high U Not detected

J- Value is estimated low UJ Not detected and RL is estimated

Rev. 01/01/15, YRM

2



### Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number Sample Location Sublocation	NA PS-Methodbl		l	.810003-0 359-0022 Trip Blank Ambient		L810003-01 359-0015 TCP-02 Ambient		
Date Analyzed Matrix	10/18/ Ai			10/18/2018 Blank	3		10/18/201 Ambient A	-
Test Type Total or Dissolved	Initial N		Initial N			Initial N		
CAS No Analyte	Result RL ppbv ppb	MDL v ppbv	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv
71-43-2 Benzene	U 0.02	00 0.00769	U	0.0200	0.00769	U	0.400	0.154

### Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number		.810003-0	)2	ı	_810003-0	)3	ı	L810003-04			
Sample Number		359-0016			359-0017	,	359-0018				
Sample Location	TCP-03			TCP-03 CO			TCP-01				
Sublocation		Ambient		Ambient Collocated			Ambient				
Date Analyzed	ate Analyzed 10/18/2018		10/18/2018			10/18/2018					
Matrix	į.	Ambient A	ir	,	Ambient A	ir	,	Ambient A	ir		
Test Type		Initial			Initial			Initial			
Total or Dissolved		Ν			Ν			Ν			
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv		
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154		

# Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L	.810003-0	)5	L	_810003-0	16	L	L810003-07			
Sample Number		359-0019	}		359-0020	)	359-0021				
Sample Location		TCP-04			TCP-06		TCP-05				
Sublocation		Ambient			Ambient		Ambient				
Date Analyzed	•	10/18/201	8		10/18/201	8		10/18/201	8		
Matrix		Ambient Air			Ambient Air			Ambient Air			
Test Type	Initial				Initial			Initial			
Total or Dissolved		Ν			Ν			Ν			
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv		
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154		





### Table 1.1b Results of the Analysis for Benzene (μg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Ivallie.	-INTOLINAO									
Lab Sample	Number		NA		ı	L810003-0	8	l	_810003-0	)1
Sample Nun	nber	PS-Me	thodblank-	101818	359-0022			359-0015		
Sample Loca	ation					Trip Blank		TCP-02		
Sublocation						Ambient			Ambient	
Date Analyz	ed		10/18/2018	3		10/18/2018	3		10/18/201	8
Matrix			Air			Blank		,	Ambient A	ir
Test Type			Initial			Initial			Initial	
Total or Diss	solved		Ν			Ν			N	
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	RL µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3
71-43-2	Benzene	U	0.0639	0.0246	U	0.0639	0.0246	U	1.28	0.491

# Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Sample Nur Sample Loc	mber	l	.810003-0 359-0016 TCP-03	_		L810003-0 359-0017 TCP-03 C	,	l	L810003-04 359-0018 TCP-01		
Sublocation Date Analyzed			Ambient 10/18/201	8	Ambient Collocated 10/18/2018			Ambient 10/18/2018			
Matrix Test Type Total or Dissolved		ı	Ambient A Initial N	ir	Ambient Air Initial N			Ambient Air Initial N			
CAS No	Analyte	Result µg/m3	RL µg/m3	<i>MDL</i> μg/m3	Result µg/m3	RL µg/m3	<i>MDL</i> μg/m3	Result µg/m3	RL µg/m3	<i>MDL</i> μg/m3	
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491	

# Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number Sample Location Sublocation Date Analyzed Matrix			.810003-0 359-0019 TCP-04 Ambient 10/18/2018	8	L810003-06 359-0020 TCP-06 Ambient 10/18/2018 Ambient Air			L810003-07 359-0021 TCP-05 Ambient 10/18/2018 Ambient Air		
Test Type Total or Diss	solved	,	Initial N	11	,	Initial N	ii	,	Initial N	II
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	RL μg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> µg/m3
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491





# Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: LCS 101818

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery	QC Limits % Recovery		
Benzene	1.00	1.01	101	92	-	120

nel c



#### Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: 359-0021

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25

USEPA

DateShipped: 10/17/2018
R
CarrierName: FedEx
AirbillNo:

1 Intel Comme

CHAIN OF CUSTODY RECORD

Site #: 359

Contact Name: Stephen Simonetti Contact Phone: 732-321-4293

No: 2-101718-141909-0008

Cooler#:

Lab: ERT/SERAS

Lab Phone: 732-321-4200

\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	#	Container	Summa #	OrificeID	Start Pres sure	Pres
01	359-0015	TCP-02	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1501	1	Summa Canister	10554	13924	-27.5	i
02	359-0016	TCP-03	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	BIN	1	Summa Canister	10590	13998	-27.5	<b>4</b> (5
03	359-0017	TCP-03 CO	Ambient Collocated	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1514	1	Summa Canister	2046	14017	-28	-2.
04	359-0018	TCP-01	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1533	1	Summa Canister	10546	223031	-27.5	-2.5
,															
			***************************************												
				, de la constantina della cons	436			in the same of the							
		and the same of th		<u> </u>											
	And the second s										***************************************	·			

	SAMPLES TRA	NSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUS	TODY#

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Samples Fee Amondses	The Lorens/sours	10/17/18	Am 27 1 15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	) as the art is a first rive.	again 1 - Lan
745-180-35-3		/544	1707 136NT3	10/18/189:00	4070C
All/Analysis	Implume SERAS	10/18/18 12:00	Jophel/SERAS	10/18/18 12:00	
			,		

USEPA

DateShipped: 10/17/2018

CarrierName: FedEx L810003

CHAIN OF CUSTODY RECORD

Site #: 359

Contact Name: Stephen Simonetti

Contact Phone: 732-321-4293

No: 2-101718-142725-0009

Cooler #:

Lab: ERT/SERAS

Lab Phone: 732-321-4200

Lab#	Sample #	Location	Sub Location  Ambient  Ambient	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	#	Container	Summa #	OrificeID	Start Pres sure	Stop Pres sure
0s	359-0019	TCP-04	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1546	1	Summa Canister	14401	14024	-28	-0,0
06	359-0020	TCP-06	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1609	1	Summa Canister	1991	13793	-28	-3,0
07	359-0021	TCP-05	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1626	1	Summa Canister	2048	223034	-28	-2.5
08	359-0022	Trip Blank	Ambient	SERAS SOP#1814	24	Hours	Blank	10/17/20 18	1630	1	Summa Canister	2008			-785
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,														,	
	and the same of th														

	SAMPLES TRANSFERRED FROM
Special Instructions: BENZENE ONLY, 24-HOR TAT PRELIMS, HE HOR FINAL	CHAIN OF CUSTODY #

items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Samples	DALZ LEXOS/SCRAS	10/17/18	Towar Plantini /SERAS	10/18/18 9:00	To do
For Annusis		1631		10413/18 1.00	Lie NTG C. I
All/Analysis	Try/ Hope / SERAS	10/18/1812:0	Jy Patel/SERAS	0/18/18 12 00	
			,		

#### ANALYTICAL REPORT

Prepared by Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services

> Tonawanda Coke Site Buffalo, NY

> > October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

> Submitted to J. Schaefer EPA/ERT 2890 Woodbridge Avenue Edison, NJ 08837

D. Killeek

10/21/18

P. Carter

Program Manager

Analysis by:

ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



#### **Table of Contents**

#### **Topic**

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

#### Section I

Results of the Analysis for Benzene (ppbv) in Air

Results of the Analysis for Benzene (µg/m³) in Air

Table 1.1a

Table 1.1b

#### Section II

Results of the LCS Analysis for Benzene in Air

Results of the Duplicate Analysis for Benzene in Air

Table 2.1

Table 2.2

### Section III

Correspondence Chains of Custody

#### **Appendices**

Appendix A Data for VOC in Air AD 045

Appendix A will be furnished on request.



#### **TESTING LABORATORIES INFORMATION**

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.





### **Detailed Sample Information**

SERAS Sample #	Field Sample #
L810005-01	359-0023
L810005-02	359-0024
L810005-03	359-0025
L810005-04	359-0026
L810005-05	359-0027
L810006-06	359-0028
L810005-07	359-0029





#### Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, Sample Receiving, Handling and Storage.

Chain of Custody #	Number of Samples		Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101818-135423- 0011	4	10/18/18	10/19/18	10/19/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 045
2-101818-135955- 0012	2				Ambient Air			
2-101818-140213- 0013	1				Blank			

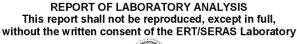
#### Case Narrative

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

#### VOCs in Air Package AD 045

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.





1



#### **Summary of Abbreviations**

BFB Bromofluorobenzene

BSBlank Spike

BSD Blank Spike Duplicate  $^{\circ}C$ Degree Centigrade COC Chain of Custody concentration conc cont continued

PCDD/PCDF Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)

**DFTPP** Decafluorotriphenylphosphine

Estimated maximum possible concentration **EMPC** GC/ECD Gas Chromatography/Electron Capture Detector GC/MS Gas Chromatography/ Mass Spectrometry Mercury-Cold Vapor Atomic Absorption Hg-CVAA

**ICP-AES** Inductively Coupled Plasma- Atomic Emission Spectroscopy

IDIdentification IS Internal Standard

LCS Laboratory Control Sample

**LCSD** Laboratory Control Sample Duplicate **MDA** Minimum Detectable Activity

Method Detection Limit **MDL** 

MS Matrix Spike

Matrix Spike Duplicate **MSD** MW Molecular Weight

Not Applicable or Not Available NA NAD Normalized Absolute Difference

NC Not Calculated

Not Requested/Not Reported NR

Percent Difference % D % R Percent Recovery

SOP Standard Operating Procedure PCB Polychlorinated Biphenyl Post Digestion Spike PDS

Percent RSD Percent Relative Standard Deviation

parts per billion by volume ppbv

parts per million ppm parts per trillion by volume

pptv

QA/QC Quality Assurance/Quality Control **QAPP** Quality Assurance Project Plan Reporting Limit RL RPD Relative Percent Difference

S4VM Stage 4 validation done manually SIM Selected Ion Monitoring

**SERAS** Scientific Engineering Response and Analytical Services

Tentatively Identified Compound TIC

TCLP Toxicity Characteristic Leaching Procedure

**SVOC** Semi Volatile Organic Compound Volatile Organic Compound VOC

Value exceeds the acceptable QC limits

$m^3$	cubic meter	g	gram	kg	kilogram	L	liter
μg	microgram	μL	microliter	mg	milligram	mL	milliliter
ng	nanograms	pg	picogram	рСі	picocurie	σ	sigma

### Data Validation Flags

Value is estimated Rejected or Value is unusable

J+Value is estimated high U Not detected

Value is estimated low UJ Not detected and RL is estimated

Rev. 01/01/15, YRM



#### Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814

Page 1 of 1

Method: SERAS SOF# 1014
Lab Name: ERT/SERAS

Lab Name: EINT/OEINAO										
Lab Sample Number	NA			L810005-07			L810005-01			
Sample Number	PS-Methodblank-101918			359-0029			359-0023			
Sample Location					Trip Blank			TCP-02		
Sublocation								Ambient		
Date Analyzed	10/19/2018			10/19/2018			10/19/2018			
Matrix	Air			Blank			Ambient Air			
Test Type	Initial			Initial			Initial			
Total or Dissolved	N			N			N			
	Result	RL	MDL	Result	RL	MDL	Result	RL	MDL	
CAS No Analyte	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	
71-43-2 Benzene	U	0.0200	0.00769	U	0.0200	0.00769	U	0.400	0.154	

#### Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L	.810005-0	)2	ı	_810005-0	)3	ι	_810053-0	)4		
Sample Number		359-0024	ļ		359-0025			359-0026			
Sample Location		TCP-03			TCP-01			TCP-04			
Sublocation		Ambient			Ambient		Ambient				
Date Analyzed	1	10/19/201	8		10/19/2018			10/19/2018			
Matrix	Ambient Air			Ambient Air			Ambient Air				
Test Type	Initial				Initial			Initial			
Total or Dissolved	N		N			N					
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv		
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154		

#### Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number Sample Location Sublocation Date Analyzed Matrix Test Type Total or Dissolved	1	810005-0 359-0027 TCP-06 Ambient 10/19/2013 Ambient A Initial N	8	,	6 : 8 ir		
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	





### Table 1.1b Results of the Analysis for Benzene (μg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

	RAS SOP#1814 ERT/SERAS							ŀ	age 1 of	1	
Lab Sample	Number	NA			I	L810005-07			L810005-01		
Sample Nun	nber	PS-Me	thodblank-	101918		359-0029			359-0023	3	
Sample Loca	ation					Trip Blank			TCP-02		
Sublocation						•			Ambient		
Date Analyz	ed	10/19/2018				10/19/2018			10/19/2018		
Matrix		Air			Blank			,	Ambient A	ir	
Test Type			Initial			Initial			Initial		
Total or Dissolved			N		N			N			
		Result	RL	MDL	Result	RL	MDL	Result	RL	MDL	
CAS No	Analyte	μg/m3	μg/m3	µg/m3	μg/m3	μg/m3	μg/m3	μg/m3	μg/m3	µg/m3	
71-43-2	Benzene	U	0.0639	0.0246	U	0.0639	0.0246	U	1.28	0.491	

### Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814
Lab Name: ERT/SERAS

Lab Sample I Sample Num		L810005-02 359-0024			I	L810005-03 359-0025			L810053-04 359-0026			
Sample Ivum			TCP-03			TCP-01			TCP-04			
Sublocation			Ambient			Ambient			Ambient			
Date Analyzed			10/19/2018			10/19/2018			10/19/2018			
Matrix		A	Ambient Air			Ambient Air			Ambient Air			
Test Type			Initial			Initial			Initial			
Total or Diss	olved	N		N			N					
CAS No	Analyte	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3		
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491		

### Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample	Number	L	_810005-0	)5	l	_810005-0	96	
Sample Nur	mber		359-0027			359-0028	<b>}</b>	
Sample Loc	ation		TCP-06			TCP-05		
Sublocation			Ambient			Ambient		
Date Analyz	ed		10/19/201	8		10/19/201	8	
Matrix		,	Ambient Air			Ambient A	ir	
Test Type	Test Type		Initial			Initial		
Total or Dis	solved	N			Ν			
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	MDL μg/m3	
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	





# Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: LCS 101918

Analyte	LCS Spike Amount te ppbv		% Recovery		QC Limits % Recovery		
Benzene	1.00	1.04	104	92	-	120	



# Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: 359-0027

	Initial Analysis	Duplicate Analysis		QC Limit
Analyte	ppbv	ppbv	RPD	RPD
Benzene	U	U	NC	≤25

nel c

USE					No: 2-101818-135423-0011							
Date	Shipped: 10/18/2018	3		Site #	: 359				Cooler#:			
	CarrierName: FedEx Contact Name: Larry Martin								Lab: I	ERT/SERAS		
Airbil WC Lab	AirbillNo: Contact Phone: 609-865-9306  WO# L810005								Lab Phone: 732-321-4200			
Lab		Location	Sub Location	Analyses	Matrix	Numb Cont	Pump#	OrificeID	Stop Pressure	Stop_Date	Stop_Time	
0	359-0023	TCP-02	Ambient	SERAS SOP#1814	Ambient Air	1	10584	13922	-2.5	10/18/2018	3:00:00 PM	
0:	359-0024 2	TCP-03	Ambient	SERAS SOP#1814	Ambient Air	1	2021	13952	-2	10/18/2018	3:13:00 PM	
0.	359-0025 <b>Š</b>	TCP-01	Ambient	SERAS SOP#1814	Ambient Air	1	13740	13917	-1.5	10/18/2018	3:30:00 PM	
Or	359-0026 <b>{</b>	TCP-04	Ambient	SERAS SOP#1814	Ambient Air	1	10539	223037	0	10/18/2018	3:43:00 PM	
<u></u>												

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
The LETNES/SERAS	10/18/15 1651	Jmg/Hmg-/SERAS	10/19118 BLW	Intact
Juny GARE / SERAS	10[19]18 10:45	Bhuti Lama ISERAS	10/19/18 11:00	7
, in the second		/		
	JAC 167085/58888	5 fle 607083/588118 /651	5 / L 67963/388118 10/18/18 Juny/Jung-/SERAS	5 / L 67065/558MS 10/18/18 7/19/18/18/18/18/18/18/18/18/18/18/18/18/18/

USEPA

CHAIN OF CUSTODY RECORD

No: 2-101818-135955-0012

າີ	oera.		CHAIN OF CUSTODY RECORD			No: 2-101818-135955-0012							
າ ປຸ Da	ateShip	ped: 10/18/2018	Site #: 359					Cooler#:					
e Ca	arrierN	ame: FedEx			Contact Name					Lab: ERT/SERAS			
	rbillNo: \/ <i>C</i> #	+	75		Contact Phone:						Lab Phone: 7		
La		Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump #	OrificeID	Stop Pressure	Stop_Date	Stop_Time	
	25	359-0027	TCP-06	Ambient	SERAS SOP#1814	Ambient Air	1	2060	13908	0	10/18/2018	3:59:00 PM	
C	26	359-0028	TCP-05	Ambient	SERAS SOP#1814	Ambient Air	1	10598	13997	- 1.5	10/18/2018	4:14:00 PM	
	N. S.						•						
		The state of the s									- A CONTRACTOR OF THE PARTY OF		
		The second second								and the second s			
									And the second s				
				The same of the sa	-			Name of Street, Street					
					The second second	- service services	and the same of th						
						The state of the s						<u> </u>	
							Charles and Control						
						<del> </del>		San	·				
				The state of the s					The state of the s	ė			
			and the state of t					***************************************		Action to the second			
			and the second second							7	A STATE OF THE STA		
		A CONTRACTOR AND A CONT											
-		operatura de la constitución de la									***************************************	<u> </u>	

SAMPLES TRANSFERRED FROM Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final CHAIN OF CUSTODY#

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMPLES FOR AMANUSES	The comos/sours	/0/18/12 /650	Jun / SERAS	0/19/18	Intact
All l'Analysis	Try Mattie / SERAS	10/19/18 10.45	Blandain du brugar /SERAS	10/19/18 11:00	
,					
<u></u>					

DateShipped: 10/18/2018 CarrierName: FedEx

CHAIN OF CUSTODY RECORD

No: 2-101818-140213-0013

wass.		CHAIN OF COSTODY RECORD				No: 2-101818-140213-0013						
DateSh	hipped: 10/18/2018			Site #:	: 359				Cooler #:			
	Name: FedEx			Contact Name					Lab: ERT/SERAS			
AirbillN		25		Contact Phone:						Lab Phone: 7		
Lab#	Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump#	OrificeID	Stop Pressure	Stop_Date	Stop_Tim	
07	359-0029	Trip Blank		SERAS SOP#1814	Blank	1	13735		-28.5	10/18/2018	4:20:00 P	
~~~												
······································					(2)							
						~~~						
	<u> </u>											

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #
······································	

Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
9/16 LOTOLS/STRAS	10/13/18 1649	my Throng / SERAS	10/19/15 840	Intact
Jung Metta /SERAS	10/19/18 16:45	Erupinda lanua 15ERAS	iolialis (1:00	
		(	, ,	
The second secon	1 10 TOLS   STRANS	10/18/18 10/18/18 10/18/18	The Lords Sours 10/18/18 my /mm /SERAS	The LOTOLS STARS 10/18/18 my Thing /SERAS 10/19/18 840

#### ANALYTICAL REPORT

Prepared by
Leidos Innovations Corporation
Scientific, Engineering, Response and Analytical Services

Tonawanda Coke Site Buffalo, NY

October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

Submitted to
J. Schaefer
EPA/ERT
2890 Woodbridge Avenue
Edison, NJ 08837

D. Killen QA/QC Officer

P. Carter

Program Manager

Analysis by:

ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



### **Table of Contents**

#### **Topic**

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

#### Section I

Results of the Analysis for Benzene (ppbv) in Air

Results of the Analysis for Benzene (µg/m³) in Air

Table 1.1a

Table 1.1b

#### Section II

Results of the LCS Analysis for Benzene in Air

Results of the Duplicate Analysis for Benzene in Air

Table 2.1

Table 2.2

### Section III

Correspondence Chains of Custody

#### **Appendices**

Appendix A Data for VOC in Air AD 046

Appendix A will be furnished on request.





#### **TESTING LABORATORIES INFORMATION**

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.





### **Detailed Sample Information**

SERAS Sample #	Field Sample #
L810006-01	359-0030
L810006-02	359-0031
L810006-03	359-0032
L810006-04	359-0033
L810006-05	359-0034
L810006-06	359-0035
L810006-07	359-0036
L810006-08	359-0037





#### Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, Sample Receiving, Handling and Storage.

Chain of Custody #	Number of Samples		Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101918-132939- 0014	4	10/19/18	10/20/18	10/20/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 046
2-101918-133220- 0015	3				Ambient Air			
	1				Blank			

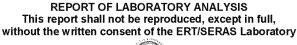
#### **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

### VOCs in Air Package AD 046

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.





1



### **Summary of Abbreviations**

BFB Bromofluorobenzene

BS Blank Spike

BSD Blank Spike Duplicate

CC Degree Centigrade
COC Chain of Custody
conc concentration
cont continued

PCDD/PCDF Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzo-furans (PCDF)

DFTPP Decafluorotriphenylphosphine

EMPC Estimated maximum possible concentration
GC/ECD Gas Chromatography/Electron Capture Detector
GC/MS Gas Chromatography/ Mass Spectrometry
Hg-CVAA Mercury-Cold Vapor Atomic Absorption

ICP-AES Inductively Coupled Plasma- Atomic Emission Spectroscopy

ID Identification
IS Internal Standard

LCS Laboratory Control Sample

LCSD Laboratory Control Sample Duplicate

MDA Minimum Detectable Activity
MDL Method Detection Limit

MS Matrix Spike

MSD Matrix Spike Duplicate MW Molecular Weight

NA Not Applicable or Not Available NAD Normalized Absolute Difference

NC Not Calculated

NR Not Requested/Not Reported

% D Percent Difference % R Percent Recovery

SOP Standard Operating Procedure PCB Polychlorinated Biphenyl PDS Post Digestion Spike

Percent RSD Percent Relative Standard Deviation

ppbv parts per billion by volume

ppm parts per million

pptv parts per trillion by volume
QA/QC Quality Assurance/Quality Control
QAPP Quality Assurance Project Plan
RL Reporting Limit
RDD Reletive Percent Difference

RPD Relative Percent Difference S4VM Stage 4 validation done manually

SIM Selected Ion Monitoring

SERAS Scientific Engineering Response and Analytical Services

TIC Tentatively Identified Compound

TCLP Toxicity Characteristic Leaching Procedure

SVOC Semi Volatile Organic Compound VOC Volatile Organic Compound

* Value exceeds the acceptable QC limits

$\mathrm{m}^3$	cubic meter	g	gram	kg	kilogram	L	liter
μg	microgram	$\mu L$	microliter	mg	milligram	mL	milliliter
ng	nanograms	pg	picogram	pCi	picocurie	σ	sigma

### Data Validation Flags

J Value is estimated R Rejected or Value is unusable

J+ Value is estimated high U Not detected

J- Value is estimated low UJ Not detected and RL is estimated

Rev. 01/01/15, YRM

2



## Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number Sample Location Sublocation	NA PS-Methodblank-102018				810006-08 359-0037 Trip Blank		L810006-01 359-0030 TCP-02 Ambient			
Date Analyzed Matrix Test Type Total or Dissolved		20/2018 Air nitial N		10/20/2018 Air Initial N		3	10/20/2018 Ambient Air Initial N		-	
CAS No Analyte	Result R		MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	
71-43-2 Benzene	U 0.	.0200	0.00769	U	0.0200	0.00769	U	0.400	0.154	

## Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L810006-02			L810006-03			L	.810006-C	)4	
Sample Number		359-0031			359-0032			359-0033		
Sample Location	TCP-03		TCP-03 CO				TCP-01			
Sublocation	Ambient		Ambient Collocated				Ambient			
Date Analyzed	10/20/2018			10/20/2018			10/20/2018			
Matrix	Ambient Air		Ambient Air			,	Ambient Air			
Test Type	Initial				Initial			Initial		
Total or Dissolved		N			Ν			Ν		
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154	

# Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L810006-05			1	L810006-06			L810006-07			
Sample Number	_	359-0034	-		359-0035			359-0036			
Sample Location	TCP-04			TCP-06			TCP-05				
Sublocation	Ambient			Ambient			Ambient				
Date Analyzed	10/20/2018			10/20/201	8		10/20/201	8			
Matrix	Ambient Air		1	Ambient Air			Ambient Air				
Test Type	Initial			Initial			Initial				
Total or Dissolved		Ν			Ν			Ν			
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv		
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154		

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





# Table 1.1b Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Name.	LIN I/OLINAS									
Lab Sample	Number	NA			ı	_810006-0	8	Į	.810006-0	)1
Sample Nur	mber	PS-Methodblank-102018				359-0037			359-0030	)
Sample Loc	ation				Trip Blank				TCP-02	
Sublocation						•			Ambient	
Date Analyz	ed		10/20/2018	3		10/20/2018	3		10/20/201	8
Matrix		Air			Air			Ambient A	ir	
Test Type			Initial			Initial			Initial	
Total or Dis	solved		N			N			N	
		Result	RL	MDL	Result	RL	MDL	Result	RL	MDL
CAS No	Analyte	μg/m3	μg/m3	μg/m3	µg/m3	μg/m3	µg/m3	μg/m3	μg/m3	µg/m3
71-43-2	Benzene	U	0.0639	0.0246	U	0.0639	0.0246	U	1.28	0.491
71-43-2	Benzene	U	0.0639	0.0246	U	0.0639	0.0246	U	1.28	0.491

## Table 1.1b (cont) Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Sample Nur Sample Loc	mber	L810006-02 359-0031 TCP-03			L810006-03 359-0032 TCP-03 CO			L810006-04 359-0033 TCP-01		
Sublocation Date Analyz			Ambient 10/20/201	8	Ambient Collocated 10/20/2018		Ambient 10/20/2018			
Matrix Test Type Total or Dis			Ambient A Initial N	_		Ambient A Initial N	-		Ambient A Initial N	
CAS No	Analyte	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491

# Table 1.1b (cont) Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Numb Sample Numb Sample Locat	er	L810006-05 359-0034 TCP-04			i	.810006-0 359-0035 TCP-06	-	L810006-07 359-0036 TCP-05			
Sublocation			Ambient	_	Ambient				Ambient		
Date Analyzed Matrix			10/20/2018 Ambient A	_	10/20/2018 Ambient Air		10/20/2018 Ambient Air				
Test Type			Initial		Initial			Initial			
Total or Disso	lved		N			N			N		
CAS No	Analyte	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> μg/m3	
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491	

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





# Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: LCS 102018

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery		C Lim Recov	
Benzene	1.00	1.01	101	92	-	120



# Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: 359-0033

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25

USEPA

#### CHAIN OF CUSTODY RECORD

U	SEPA					No: 2-101918-132939-0014							
n D	ateShi	pped: 10/19/2018			Site #:	359						Cooler#:	
Č C	arrierN	lame: FedEx			Contact Name: Larry Ma	artin/samples re	ceiving				Lab: I	ERT/SERAS	
) A	irbillNo	t .			Contact Phone:	609-865-9306				Lab Phone: 732-321-4200			
"	<u>. 21</u>	0006											
	ab#	Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump #	OrificeID	Stop Pressure	Stop_Date	Stop_Time	
3 (	01	359-0030	TCP-02	Ambient	SERAS SOP#1814	Ambient Air	1	10604	13911	-3	10/19/2018	2:55:00 PM	
) ) (	01	359-0031	TCP-03	Ambient	SERAS SOP#1814	Ambient Air	1	10594	13988	-2	10/19/2018	3:07:00 PN	
(	23	359-0032	TCP-03 CO	Ambient Collocated	SERAS SOP#1814	Ambient Air	1	10583	13990	-2	10/19/2018	3:07:00 PN	
(	24	359-0033	TCP-01	Ambient	SERAS SOP#1814	Ambient Air	1	10616	223024	-2	10/19/2018	3:23:00 PN	
	en,						and the second s	Control of the Contro					
	*******************					The state of the s							
					The state of the s								
								and the same of th					
					<u> </u>	)			and the same of th				
										The same of the sa			
											***************************************		
	***************************************												
	ar or other second	Law.											
i		i						<u> </u>		<u> </u>		<u> </u>	

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Relinguished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ANNUSES	Jeffle LOTOUS SEEAS	10/19/16 1659	Trus Pouri ISERAS	10/20/18 10:30	
All/Amlysis	Ing Flatti /SERAS	ic/20/18 16: 50	Phyliphylarus 1 SERAS	16/20/18 10:50	
<b>4</b>		<u></u>	<u> </u>	J	

USEPA

#### CHAIN OF CUSTODY RECORD

No: 2-101918-133220-0015

						-			X X 40/2 0 000	. x . x . x . x . x . x . x . x . x . x	0 00x 00x 00x 00x 0x 0x 0x 0x 0x 0x 0x 0	
	nipped: 10/19/2018			Site #:	359						Cooler#:	
Carrier AirbillN	Name: FedEx		C	ontact Name: Larry Ma	ırtin/samples re	ceiving				Lab: I	ERT/SERAS	
				Contact Phone:	609-865-9306				Lab Phone: 732-321-4200			
-L81	0006											
Lab#	Sample #	Location	Sub Location	Analyses	Watrix	Numb Cont	Pump#	OrificeID	Stop Pressure	Stop_Date	Stop_Time	
05	359-0034	TCP-04	Ambient	SERAS SOP#1814	Ambient Air	1	10543	13953	-3.5	10/19/2018	3:34:00 PM	
06	359-0035	TCP-06	Ambient	SERAS SOP#1814	Ambient Air	1	10595	13951	-0.5	10/19/2018	3:50:00 PM	
07	359-0036	TCP-05	Ambient	SERAS SOP#1814	Ambient Air	1	10620	13925	-1.5	10/19/2018	4:17:00 PM	
08	359-0037	Trip Blank		SERAS SOP#1814	Air	1	2057		-29.5	10/19/2018	4:25:00 PM	
						ىر.			··'			
						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
	The same of the sa					<u> </u>						
	Strange works Assessed to the Control of the Contro			and the second s							<u> </u>	
		***										
			and the same of th		The same of the sa				~~~~			
				45)					~			
									The state of the s	· · · · · · · · · · · · · · · · · · ·		
					<u> </u>				·····		-	

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Relinquished,by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMPLES FOR ANALYSES 6	JAN LETSOS/50785	/9/19/16 /700	They Promis   SERAS	10/20/18 10:30	Intact
AU/Analysis	Ing Hami SERAS	0/20/18 10:50	Ch. , ,	16/20/18 10:50	
			/		

### ANALYTICAL REPORT

Prepared by Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services

> Tonawanda Coke Site Buffalo, NY

> > November 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

> Submitted to J. Schaefer EPA/ERT 2890 Woodbridge Avenue Edison, NJ 08837

> > Date

Date

D. Killeen QA/QC Officer

11/16/18 P. Carter

Program Manager

Analysis by:

ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



### Table of Contents

### Topic

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

### Section I

Results of the Analysis for Benzene (ppbv) in Air Results of the Analysis for Benzene (µg/m³) in Air

Table 1.1a

Table 1.1b

### Section II

Results of the LCS Analysis for Benzene in Air Results of the Duplicate Analysis for Benzene in Air Table 2.1

Table 2.2

### Section III

Correspondence Chains of Custody

### **Appendices**

Appendix A Data for VOC in Air

AD 047

Appendix A will be furnished on request.

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full, without the written consent of the ERT/SERAS Laboratory

ΑĨδ



### **TESTING LABORATORIES INFORMATION**

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.



## Detailed Sample Information

SERAS Sample #	Field Sample #
L810007-01	359-0038
L810007-02	359-0039
L810007-03	359-0040
L810007-04	359-0041
L810007-05	359-0042
L810007-06	359-0043
L810007-07	359-0044
L810007-08	359-0045
L810007-09	359-0046
L810007-10	359-0047
L810007-11	359-0048
L810007-12	359-0049
L810007-13	359-0050
L810007-14	359-0051
L810007-15	359-0052

All b



#### Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included OA/OC. data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, Sample Receiving, Handling and Storage.

Chain of Custody #	Number of Samples	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-102218-100059- 0017	6	10/20/18	10/22/18	10/2218 Through 10/23/18	Ambient Air Blank	VOC/SERAS SOP #1814	ERT/SERAS	AD 047
	7	10/21/18			Ambient Air Blank			

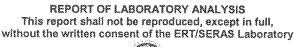
#### Case Narrative

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

### VOCs in Air Package AD 047

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.



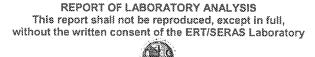




### Summary of Abbreviations

			Summary or	Appreviano	38		
BFB BS BSD CCOC conc cont PCDD/I DFTPP EMPC GC/ECI GC/MS Hg-CV/I ICP-AE ID IS LCS LCSD MDA MDL MS MSD MW NA NA NA NA NA NC NR % D % R SOP PCB PDS Percent ppbv ppm pptv QA/QC QAPP RL RPD S4VM SIM SERAS TICLP SVOC V	Blank S Blank S Blank S Degree Chain of concent continue PCDF Polych Decaffor Estimat D Gas Ch AA Mercur S Inductifor Internation Laborate Matrix Matrix Molecut Not Ap Normal Not Cal Not Rec Percent Percent Percent Percent Percent Standar Polychl Post Di RSD Percent parts pe	Spike Duple Centigrad of Custody tration and lorinated duorotripher ted maximum atogral romatogral	icate  ibenzo-p-dioxins (PCDD) a tylphosphine tylphosphin	ctor		as (PCDF)	
			go come a me age for a substitute				
m³ µg ng	cubic meter microgram nanograms	g μL pg	gram microliter picogram	kg mg pCi	kilogram milligram picocurie	L mL σ	liter milliliter sigma
			Data Valida	ition Flags			
			30° 10 200 ° 004 N 345				
] ]+ ]-	Value is estimated Value is estimated Value is estimated	l high		R U UJ	Rejected or Value Not detected Not detected and I		

Rev. 01-01-15, YRM







# Table 1.1a Results of the Analysis for Benzene (ppby) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS							•	Page 1 of 2	2
Lab Sample Number		NA		ı	L810007-0	7	1	.810007-1	5
Sample Number	PS-Me	thodblank	102218		359-0044			359-0052	
Sample Location Sublocation					Trip Blank			Trip Slank	:
Date Analyzed		10/22/2018	3		10/22/2018	)		10/22/2014	š
Matrix		Air			Blank			Blank	
Test Type		Initial			Initial			Initial	
Total or Dissolved		N			N			N	
CAS No Analyte	Result ppbv	RL ppbv	MDL ppbv	Result ppbv_	RL ppbv	MCL, ppbv	Result ppbv	RL ppbv	MDL ppbv
71-43-2 Benzene	U	0.0200	0.00769	U	0.0200	0.00769	U	0.0200	0.00769

## Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L810007-01			1	L810007-0	12	L810007-03		
Sample Number	359-0038			359-0039			359-0040		
Sample Location	TCP-02				TCP-03		TCP-01		
Sublocation	Ambient			Ambient			Ambient		
Date Analyzed	10/22/2018			10/22/2018			10/22/2018		
Matrix	Ambient Air			Ambient Air			Ambient Air		
Test Type	Initial				Initial			Initial	
Total or Dissolved	N				N			N	
CAS No Analyte	Result opby	RL ppbv	MDL pobv	Result ppbv	RL pobv	MDL poby	Result ppby	RL ppbv	MDL ppbv
	**************************************			***************************************					
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154

# Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number L810007-04 Sample Number 359-0041 Sample Location TCP-04 Sublocation Ambient					.810007-0 359-0042 TCP-06 Ambient		L810007-06 359-0043 TCP-05 Ambient			
Date Analyzed	1	0/22/201	6	10/22/2018			10/22/2018			
Matrix	A	Imbient A	ir		Ambient A	ir		Ambient A	ir	
Test Type		Initial		Initial				Initial		
Total or Dissolved		N		N				N		
CAS No Analyte	Result ppbv	RL ppbv	MDL ppby	Result ppbv	RL ppbv	MOL ppbv	Result ppbv	RL ppbv	MDL ppbv	
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of the ERT/SERAS Laboratory





# Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS							1	Page 2 of	2
Lab Sample Number	į	.810007-0	18	1	.810007-0	9	1	L810007-1	0
Sample Number		359-0046	š		359-0046	ì		359-0047	,
Sample Location		TCP-02			TCP-03			TCP-01	
Sublocation		Ambient			Ambient			Ambient	
Date Analyzed		10/22/201	â		10/22/201	8		10/23/201	a
Matrix	,	Ambient A	ir		Ambient A	-		Ambient A	
Test Type		Initial		,	Initial			Initial	
Total or Dissolved		N			N			N	
	Result	RL	MDL	Result	RL.	MDL	Result	RL	MDL
CAS No Analyte	ppby	ppbv	ppbv	ppby	ppbv	vdqq	ρρυν	ppbv	ppbv
71-43-2 Senzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154

## Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOF#1814 Lab Name: ERT/SERAS

Lab Sample Number	1	.810007-1	1		L810007-1	2		L810007-	13	
Sample Number		359-0048			359-0049			359-0050		
Sample Location		TCP-04		TCP-04CO			TCP-08			
Sublocation		Ambient		Ambient Collocated			Ambient			
Date Analyzed	10/23/2018 Ambient Air Initial		10/23/2018 Ambient Air				10/23/2018			
Matrix						Ambient Air				
Test Type				Initial			Irilial			
Total or Dissolved		N		N			N			
		. •			.,			1.0		
	Result	RL	MOL.	Result	RL	MOL	Result	RL	MDL	
CAS No Analyte	vdag	ppby	ppby	ydag	ppby	ppby	vdaa	ppbv	vdaa	
***************************************						ε				
71-43-2 Benzene	£.3	0.400	0.154	U	0.400	0.154	U	0.400	0.154	
				~	40. 640.00	0.,64	Ų	W-486	0.704	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~										

Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L810007-	14
Sample Number	359-005	į
Sample Location	TCP-05	
Sublocation	Ambien	į
Date Analyzed	10/23/201	8
Matrix	Ambient A	١F
Test Type	Initial	
Total or Dissolved	N	
	Result RL	

CAS No A	\nalyte	Result ppbv	RL ppbv	MDL ppby
71-43-2 E	Benzene	U	0.400	0.154

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of the ERT/SERAS Laboratory





Table 1.1b Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

	RAS SOP#1814 ERT/SERAS							\$	Page 1 of 3	2
Lab Sample Number Sample Number Sample Location Sublocation		NA PS-Methodbiank 102218			L810007-07 359-0044 Trip Blank			L810097-15 359-0052 Trip Blank		
Date Analyz Matrix Test Type Total or Dis			10/22/2010 Air Initial N	3		10/22/2011 Blank Initial N	8		10/22/201: Blank Initial N	8
CAS No	Analyte	Result µg/m3	RL ug/m3	MDL µg/m3	Result µg/m3	RL µg/m3	MDL µg/m3	Result µg/m3	RL ug/m3	MDL ug/m3
71-43-2	Benzene	U	0.0639	0.0246	U	0.0639	0.0246	U	0.0639	0.0246

Table 1.1b (cont) Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number Sample Location Sublocation Date Analyzed Matrix Test Type Total or Dissolved			L810007-01 359-0038 TCP-02 Ambient 10/22/2D18 Ambient Air Initial N			L810007-02 359-0039 TCP-03 Ambient 10/22/2018 Ambient Air Inilial N			L810007-03 359-0040 TCP-01 Ambient 10/22/2018 Ambient Air Initial		
CAS No	Analyte	Result ug/m3	FiL ug/m3	MDL µg/m3	Result µg/m3	RL ug/m3	MDL up/m3	Result µg/m3	RL µg/m3	MDL ug/m3	
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491	

Table 1.1b (cont) Results of the Analysis for Benzene (μg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number Sample Location Sublocation Date Analyzed Matrix Test Type Total or Dissolved			L810007-04 359-0041 TCP-04 Ambient 10/22/2018 Ambient Air Inilial N			L810007-05 359-0042 TCP-06 Ambient 10/22/2018 Ambient Air Initiat N			L810007-06 359-0043 TCP-05 Ambiert 10/22/2018 Ambient Air Initial N		
CAS No	Analyte	Result µg/m3	RL µg/m3	MDL µg/m3	Result µg/m3	RL ug/m3	MDL µg/m3	Result µg/m3	RL µg/m3	MDL ug/m3	
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of the ERT/SERAS Laboratory





Table 1.1b (cont) Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814

Page 2 of 2

Lab Name: ERT/SERAS

Lab Sample Number	L810007-08
Sample Number	359-0045
Sample Location	TCP-02
Sublocation	Ambient
Date Analyzed	10/22/2018
Matrix	Ambient Air
Test Type	Initial
Total or Dissolved	N

L810007-09 359-0046 TCP-03 Ambient 10/22/2018 Ambient Air Initial N

359-0047 TCP-01 Ambient 10/23/2018 Ambient Air Initial N

L810007-10

CAS No	Analyte	Result ug/m3	RL µg/m3	MDL ug/m3	Result µg/m3	RL ug/m3	MDL µg/m3	Result µg/m3	RL ug/m3	MDL µg/m3
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491

Table 1.1b (cont) Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L810007-11
Sample Number	359-0048
Sample Location	TCP-04
Sublocation	Ambient
Date Analyzed	10/23/2018
Matrix	Ambient Air
Test Type	Initial
Total or Dissolved	N

L810007-12 359-0049 TCP-04CO Ambient Collocated 10/23/2018 Ambient Air Initial N

L810007-13 359-0050 TCP-06 Ambient 10/23/2018 Ambient Air Initial N

CAS No	Analyte	Result µg/m3	RL ug/m3	MDL µg/m3	Result ug/m3	RL µg/m3	MDL µg/m3	Result µg/m3	RL µg/m3	MDL µg/m3
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491

Table 1.1b (cont) Results of the Analysis for Benzene (µg/m³) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number L810007-14 Sample Number 359-0051 Sample Location TCP-05 Sublocation Ambient Date Analyzed 10/23/2018 Matrix Ambient Air Test Type Initial Total or Dissolved Ν

> Result AL MOL Analyte ua/m3 ug/m3 µg/m3 Benzene 11 1 28 0.491

> > REPORT OF LABORATORY ANALYSIS This report shall not be reproduced, except in full, without the written consent of the ERT/SERAS Laboratory



CAS No

71-43-2



Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: LCS 102218

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery	% 1	C Lim Recov	ery
Benzene	1.00	1.04	104	92		120



Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: 359-0042

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	s25

Sample ID: 359-0045

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	s25

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,

SERAS-359-DARR1-111618 without the written consent of the ERT/SERAS Laboratory



USEPA

AirbillNo:

DateShipped: 10/22/2018 CarrierName: Hand Delivered CHAIN OF CUSTODY RECORD

Site #: 359

Contact Name: Larry Martin/samples receiving

Contact Phone: 609-865-9306

No: 2-102218-100059-0017

Cooler#:

Lab: ERT/SERAS

Lab Phone: 732-321-4200

Lab#	Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump#	OrificeID	Stop Pressure	Stop_Date	Stop_Time
(Lab#	359-0038	TCP-02	Ambient	SERAS SOP#1814	Ambient Air	1	10542	13927	-2.5	10/20/2018	2:50:00 PM
02	359-0039	TCP-03	Ambient	SERAS SOP#1814	Ambient Air	1	10599	13991	-5	10/20/2018	3:03:00 PM
0.5	359-0040	TCP-01	Ambient	SERAS SOP#1814	Ambient Air	1	2049	14019	-4.5	10/20/2018	3:17:00 PM
04	359-0041	TCP-04	Ambient	SERAS SOP#1814	Amblent Air	1	1822	13933	-9	10/20/2018	3:30:00 PM
0.5	359-0042	TCP-06	Ambient	SERAS SOP#1814	Ambient Air	1	1986	13950	-2	10/20/2018	3:57:00 PM
06	359-0043	TCP-05	Ambient	SERAS SOP#1814	Ambient Air	1	10552	13961	-4	10/20/2018	4:17:00 PM
07	359-0044	Trip Blank		SERAS SOP#1814	Blank	1	2028		-29	10/20/2018	4:15:00 PM
08	359-0045	TCP-02	Ambient	SERAS SOP#1814	Ambient Air	1	10529	223018	-0.5	10/21/2018	8:57:00 AM
09	359-0046	TCP-03	Ambient	SERAS SOP#1814	Ambient Air	4	14397	13915	-2	10/21/2018	9:10:00 AM

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #
	İ

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMACO FOC AMMITTES	Tylla LOXOCO/SCOMS	10/22/18 1007	my Man-1SERAS	10122/18 10:15	1 L
A11/Andys,3	my Tome ISERAS	00/اا ۱۱/دد/۱۵	Jay Patel/SEXAS	10/22/18 11:00	
,			,	/	
*					

USEPA

USEPA

O DateShipped: 10/22/2018

CarrierName: Hand Delive

AirbillNo: CarrierName: Hand Delivered CHAIN OF CUSTODY RECORD

Site #: 359

Contact Name: Larry Martin/samples receiving

Contact Phone: 609-865-9306

No: 2-102218-100059-0017

Cooler #:

Lab: ERT/SERAS

Lab Phone: 732-321-4200

W0#	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	***************************************		·····ːːːːːːːːː························	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				,	.,,
Lab#	Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump #	OrificeID	Stop Pressure	Stop_Date	Stop_Time
10	359-0047	TGP-01	Ambient	SERAS SOP#1814	Ambient Air	1	10615	223015	-1	10/21/2018	9:24:00 AM
	359-0048	TCP-04	Ambient	SERAS SOP#1814	Ambient Air	1	10563	13987	-0.5	10/21/2018	9:39:00 AM
12	359-0049	TCP-04 CO	Ambient Collocated	SERAS SOP#1814	Ambient Air	1	10617	223016	-1.5	10/21/2018	9:39:00 AM
13	359-0050	TCP-06	Ambient	SERAS SOP#1814	Ambient Air	1	10547	223049	-1.5	10/21/2018	9:57:00 AM
14	359-0051	TCP-05	Ambient	SERAS SOP#1814	Ambient Air	1	10596	223020	-1	10/21/2018	10:16:00 AM
15	359-0052	Trip Blank		SERAS SOP#1814	Blank	1	1980		-29	10/21/2018	10:19:00 AM
~~~~~~	***************************************										
***************************************						-65			The state of the s		
	The state of the s								***************************************	The state of the s	garage

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #
	1

Items/Reason	Relinguished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SIAMPLES FOIL ANAUSTS	JAL CEROS SERVIS	10/22/18 1008	Transformi /SERAS	10/22/18 10:15	Inter
All /Hnglys,'s	Tonge Hornie / SERHS	10/33/18 11:60	San Marie Control of the Control of	10/22/18 11:00	
	d-fj-16-08-64-5		- Marie Mari	4	